

What is claimed is:

1. A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication,
5 comprising:

a path detector, which is used in a time-division manner so as to generate timing signals for the plurality of channels, for generating a timing signal
10 corresponding to each of the plurality of channels according to a correlation between an input signal including the spread signals which are respectively transmitted over the plurality of channels and a spread code corresponding to each of the plurality of
15 channels; and

a plurality of despread demodulators, which are arranged for the plurality of channels, for demodulating a corresponding spread signal among the plurality of spread signals included in the input
20 signal according to the timing signal generated by said path detector.

2. The receiving device according to claim 1, wherein said path detector comprises:

25 spread code generating means for generating spread

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codes corresponding to the plurality of channels in an order according to a predetermined algorithm;

a matched filter for outputting correlation level data between the input signal and the spread code generated by said spread code generating means; and

5 timing signal generating means for generating a timing signal based on the correlation level data.

10 3. The receiving device according to claim 1,
wherein:

a spread signal transmitted over each of the plurality of channels includes pilot signals inserted at predetermined intervals; and

15 said path detector generates the timing signal by using the pilot signals for each of the plurality of channels.

20 4. The receiving device according to claim 1,
which generates a timing signal by using a plurality
of pilot signals for each of the plurality of channels, wherein said path detector comprises:

first path detecting means for detecting a path with a voltage addition operation if a correlation level between pilot signals is high;

25 second path detecting means for detecting a path

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with a power addition operation if the correlation between pilot signals is low; and

timing signal generating means for generating the
timing signal based on the paths detected by said
first and second path detecting means.

5. The receiving device according to claim 1,
which generates a timing signal by using a plurality
of pilot signals for each of the plurality of
channels, wherein said path detector comprises:
10

path detecting means for detecting a path with an operation for adding an absolute value of correlation level data of each of the plurality of pilot signals; and

15 timing signal generating means for generating the
timing signal based on the path detected by said path
detecting means.

6. The receiving device according to claim 1,
20 further comprising:

priority information storing means for storing information about priorities of the plurality of despread demodulators, wherein

25 said path detector operates for a despread demodulator determined based on the priority

information stored in said priority information storing means.

7. The receiving device according to claim 6,
5 wherein when a synchronization establishment process
is requested for a certain channel, a higher priority
is given to a despread demodulator corresponding to
the channel.

10 8. The receiving device according to claim 6,
further comprising:

profile detecting means for detecting a delay
profile of each of the channels; and
15 priority determining means for determining the
priorities of the plurality of despread demodulators
based on an amount of a change of the delay profile,
which is detected for each of the channels.

9. The receiving device according to claim 8,
20 wherein said priority determining means determines the
priorities of the plurality of despread demodulators
based on a change of a maximum path on each of the
channels.

25 10. The receiving device according to claim 8,

wherein said priority determining means determines the priorities of the plurality of despread demodulators based on changes of a maximum path on each of the channels and of a path existing in a predetermined range from the maximum path.

11. The receiving device according to claim 6, wherein said path detector determines the priorities of the plurality of despread demodulators based on an error rate of each of the channels.

12. The receiving device according to claim 6, wherein said path detector references said priority information storing means only when timings of the pilot signals on the plurality of channels overlap.

13. The receiving device according to claim 3, further comprising:

a memory for storing input signals; and
20 memory controlling means for reading the input signals from said memory and for providing said path detector with the read signals, when the timings of the pilot signals on the plurality of channels overlap, wherein
25 said path detector sequentially generates timing

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signals corresponding to the channels by using the pilot signals on the plurality of channels.

14. The receiving device according to claim 13,
5 wherein said memory controlling means repeatedly reads
the input signals from said memory a required number
of times, according to the number of overlapping pilot
signals.

10 15. The receiving device according to claim 13,
wherein when the timings of the pilot signals on the
plurality of channels overlap, only portions including
the pilot signals within the input signals are stored
in said memory.

15 16. The receiving device according to claim 1,
further comprising:

delaying means for delaying a signal to be input
to the plurality of despread demodulators by an amount
20 of time required to generate the timing signal by said
path detector.

17. The receiving device according to claim 3,
further comprising:
25 a memory for storing at least a portion including

a pilot signal within the input signal; and

memory controlling means for repeatedly reading
the pilot signal from said memory an L-1 number of
times and for providing said path detector with read
5 pilot signals, when L branch space diversity reception
is made, wherein

said path detector sequentially generates timing
signals by using the respective pilot signals.

10 18. A receiving device for receiving spread
signals which are respectively transmitted over a
plurality of channels in a CDMA communication,
comprising:

15 a path detector, which operates in a time-division
manner, for detecting delay profiles for the plurality
of channels and for generating a timing signal
corresponding to each of the channels based on the
delay profiles; and

20 a plurality of despread demodulators, which are
arranged for the plurality of channels, for
demodulating a corresponding spread signal among a
plurality of spread signals included in an input
signal according to the timing signal generated by
said path detector.

19. A receiving device for receiving spread signals which are respectively transmitted over a plurality of channels in a CDMA communication, comprising:

5 a plurality of despread demodulators, which are respectively arranged for the plurality of channels, for demodulating a spread signal transmitted over a corresponding channel by despreading the spread signal with a corresponding spread code; and

10 instructing means for instructing a phase of each spread code used for spreading each of the spread signals transmitted over the plurality of channels, wherein

15 said instructing means is shared by the plurality of despread demodulators.

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